# PROJECT 10073 RECORD

| 1. DATE - TIME GROUP | 2. LOCATION |
|---|---|
| 18 Jul 64 19/0355Z | Lynn, Massachusetts |
| 3. SOURCE<br>Civilian<br>4. NUMBER OF OBJECTS<br>One | 10. CONCLUSION<br>BALLOON<br><br>Sighting descriptive of a balloon observation. |
| 5. LENGTH OF OBSERVATION<br>More than 10 minutes<br>6. TYPE OF OBSERVATION<br>Ground-Visual<br>7. COURSE<br>Varied<br>8. PHOTOS<br>☐ Yes<br>☒ No<br>9. PHYSICAL EVIDENCE<br>☐ Yes<br>☒ No | 11. BRIEF SUMMARY AND ANALYSIS<br>Object resembling Star with same mag as ECHO II moving SSW. Moved at same speed as ECHO. Object then slowed down and stopped. Moved back overhead. Maintained starlike appearance. Object moved away steadily to the NNE. |

FORM
FTD SEP 63 0-329 (TDE) Previous editions of this form may be used.

Form 610-12

| *Identification | | U.S. DEPARTMENT OF COMMERCE<br>WEATHER BUREAU<br>**WINDS-ALOFT COMPUTATION SHEET**<br>(LAND STATION FORM)<br>WBAN-20 | | Year | Month | Day | Time |
|---|---|---|---|---|---|---|---|
| | WBAS, BOSTON 29, MASS.<br>42° 22'N 71° 02'W<br>PIBAL THEODOLITE<br>75th MER ELEV 11' MSL | | Actual (local standard) | 1964 | July | 19 | 062 |
| | | | Scheduled (G.M.T.) | 1964 | July | 19 | 120 |
| | | | Ascension No. 648 | | | | |

Type of balloon 100 GR

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle° Observed | Elevation angle° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction° 360°= N. | Wind Speed (m.p.s.) | Rawinsonde Time-Altitude Data: Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | sfc. 260 | 7.7 | | | | |
| | 216 / 350 | 1 | | 38.6 | | 440 | 253.7 | 1 | 279 | 12.0 | + | | | |
| | 414 / 670 | 2 | | 25.2 | | 1425 | 278.6 | 2 | 294 | 16.6 | 5 | | | |
| | 612 / 980 | 3 | | 22.7 | | 2345 | 286.8 | 3 | 298 | 15.1 | 10 | | | |
| | 801 / 1285 | 4 | | 21.9 | | 3195 | 289.5 | 4 | 291 | 13.1 | 15 | | | |
| | 990 / 1585 | 5 | | 22.1 | | 3905 | 288.5 | 5 | 276 | 11.8 | 20 | | | |
| | 1170 / 1880 | 6 | | 22.4 | | 4560 | 285.3 | 6 | 264 | 11.2 | 25 | | | |
| | 1350 / 2170 | 7 | | 22.8 | | 5160 | 282.2 | 7 | 258 | 10.8 | 30 | | | |
| | 1530 / 2455 | 8 | | 23.2 | | 5730 | 279.5 | 8 | 254 | 11.1 | 35 | | | |
| | 1710 / 2740 | 9 | | 23.3 | | 6360 | 276.7 | 9 | 256 | 12.0 | 40 | | | |
| | 1890 / 3020 | 10 | | 23.1 | | 7080 | 274.9 | 10 | 262 | 11.1 | 45 | | | |
| | 2070 / 3300 | 11 | | 23.3 | | 7665 | 274.1 | 11 | 265 | 9.9 | 50 | | | |
| | 2250 / 3580 | 12 | | | | | | 12 | | | 55 | | | |
| | 2430 / 3855 | 13 | | | | | | 13 | | | 60 | | | |
| | 2610 / 4130 | 14 | | | | | | 14 | | | 65 | | | |
| | 2790 / 4405 | 15 | | | | | | 15 | | | 70 | | | |
| | 2970 / 4675 | 16 | | | | | | 16 | | | 75 | | | |
| | 3150 / 4945 | 17 | | | | | | 17 | | | 80 | | | |
| | 3330 / 5215 | 18 | | | | | | 18 | | | 85 | | | |
| | 3510 / 5485 | 19 | | | | | | 19 | | | 90 | | | |
| | 3690 / [illegible] | 20 | | | | | | 20 | | | 95 | | | |

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...MD-1A,
...MD-1,
...CR-658,
...heodolite

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|---|---|---|---|---|---|---|---|---|---|---|
| | 3870 6025 | 21 | | | | | | 21 | | |
| | 4050 6295 | 22 | | | | | | 22 | | |
| | 4230 6565 | 23 | | | | | | 23 | | |
| | 4410 6835 | 24 | | | | | | 24 | | |
| | 4590 7105 | 25 | | | | | | 25 | | |
| | 4770 7375 | 26 | | | | | | 26 | | |
| | 4950 7645 | 27 | | | | | | 27 | | |
| | 5130 7915 | 28 | | | | | | 28 | | |
| | 5310 8185 | 29 | | | | | | 29 | | |
| | 5490 8455 | 30 | | | | | | 30 | | |
| | 5670 8730 | 31 | | | | | | 31 | | |
| | 5850 9005 | 32 | | | | | | 32 | | |
| | 6030 9285 | 33 | | | | | | 33 | | |
| | 6210 9565 | 34 | | | | | | 34 | | |
| | 6390 9850 | 35 | | | | | | 35 | | |
| | 6570 10135 | 36 | | | | | | 36 | | |
| | 6750 10420 | 37 | | | | | | 37 | | |
| | 6930 10710 | 38 | | | | | | 38 | | |
| | 7110 11005 | 39 | | | | | | 39 | | |
| | 7290 11300 | 40 | | | | | | 40 | | |
| | 7470 11595 | 41 | | | | | | 41 | | |
| | 7650 11890 | 42 | | | | | | 42 | | |
| | 7830 12185 | 43 | | | | | | 43 | | |
| | 8010 12480 | 44 | | | | | | 44 | | |
| | 8190 12775 | 45 | | | | | | 45 | | |
| | 8370 13075 | 46 | | | | | | 46 | | |
| | 8550 13375 | 47 | | | | | | 47 | | |
| | 8730 13675 | 48 | | | | | | 48 | | |
| | 8910 13975 | 49 | | | | | | 49 | | |
| | 9090 14275 | 50 | | | | | | 50 | | |

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| 100 | | | |
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| x | | | |

PP

**Coded Data for Transmission**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72509 | 12462 | 2822 | 12930 | 3030 | 42926 | 2823 | 62722 | 2621 | 82521 |
| 2623 | 02621 | 013212 | 12509 | 6[illegible] | 0 | 0 | 5 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

**Punched Card Data**

| Altitude | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude | Direction (degrees) | Speed |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 0 | 16 | Type of equipment | | |
| sfc. | 260 | 8 | 17-21 | 7 | | |
| 150 m. | 268 | 9 | 22-26 | 8 | | |
| 300 m. | 277 | 12 | 27-31 | 9 | | |
| 0.5 | 285 | 14 | 32-36 | 10 | | |
| 1.0 | 298 | 15 | 37-41 | 11 | | |
| 1.5 | 280 | 12 | 42-46 | 12 | | |
| 2.0 | 263 | 11 | 47-51 | 13 | | |
| 2.5 | 255 | 11 | 52-56 | 14 | | |
| 3 | 262 | 11 | 57-61 | 15 | | |
| 4 | | | 62-66 | 16 | | |
| 5 | | | 67-71 | 17 | | |
| 6 | | | 72-76 | 18 | | |

**Maximum Wind Speed Data**

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Max. wind speed (m.p.s.) and dir. (degrees) | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

Verifier [illegible]

FORM 610-12

*Identification

Nantucket, Mass. (Memorial Airport)
41° 15' N 70° 04' W   75th Meridan Time
Station Elev. 14 M Method Obs. Rabal
Type of Equipment Theodolite — WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

# WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)

WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual time 75th mer. | 1964 | JUL | 16 | 1815 |
| Scheduled (G.M.T.) | 1964 | JUL | 17 | 00 |

Ascension No. 651

Page 1

Type of balloon 1200 gram

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle° Observed | Elevation angle° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction° 360°= N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | sfc. 240 | 3.1 |
| | 216 / 350 | 1 | 250 | 25.4 | | 530 | 250.2 | 1 | 255 | 9.4 |
| | 414 / 670 | 2 | 510 | 24.6 | | 1120 | 254.9 | 2 | 258 | 9.7 |
| | 612 / 980 | 3 | 760 | 23.8 | | 1720 | 256.3 | 3 | 263 | 9.6 |
| | 801 / 1285 | 4 | [illegible] | 23.4 | | [illegible] | 259.1 | 4 | 264 | 10.5 |
| | 990 / 1585 | 5 | [illegible] | 22.5 | | [illegible] | 259.6 | 5 | 262 | 10.9 |
| | 1170 / 1880 | 6 | [illegible] | 22.3 | | [illegible] | 260.4 | 6 | 267 | 10.4 |
| | 1350 / 2170 | 7 | 1720 | 21.9 | | [illegible] | 262.2 | 7 | 272 | 9.6 |
| | 1530 / 2455 | 8 | [illegible] | 22.2 | | [illegible] | 263.2 | 8 | 271 | 9.2 |
| | 1710 / 2740 | 9 | [illegible] | 22.2 | | 5320 | 263.8 | 9 | 264 | 9.5 |
| | 1890 / 3020 | 10 | [illegible] | 22.1 | | [illegible] | 263.2 | 10 | 259 | 10.3 |
| | 2070 / 3300 | 11 | [illegible] | 22.0 | | 6550 | 263.0 | 11 | 267 | 9.4 |
| | 2250 / 3580 | 12 | [illegible] | 22.3 | | 7040 | 263.8 | 12 | 273 | 8.6 |
| | 2430 / 3855 | 13 | [illegible] | 22.5 | | 7710 | 264.4 | 13 | 273 | 9.2 |
| | 2610 / 4130 | 14 | [illegible] | 22.7 | | 8190 | 265.1 | 14 | 270 | 8.1 |
| | 2790 / 4405 | 15 | [illegible] | 23.0 | | [illegible] | 264.9 | 15 | 261 | 8.4 |
| | 2970 / 4675 | 16 | 4000 | 23.0 | | [illegible] | 264.5 | 16 | 263 | 11.0 |
| | 3150 / 4945 | 17 | 4240 | 22.9 | | [illegible] | 264.6 | 17 | 265 | 10.5 |
| | 3330 / 5215 | 18 | 4440 | 23.0 | | 10500 | 264.5 | 18 | 261 | 10.1 |
| | 3510 / 5485 | 19 | 4690 | 22.8 | | [illegible] | 264.2 | 19 | 259 | 10.6 |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| + 2.8 | 1020 | 14 | 0 |
| 5 | 981 | 350 | 1.4 |
| 10 | 900 | 1100 | 4.4 |
| 15 | 822 | 1870 | 7.5 |
| 20 | 751 | 2600 | 10.7 |
| 25 | 683 | 3400 | 13.7 |
| 30 | 620 | 4180 | 16.7 |
| 35 | 562 | 4970 | 19.9 |
| 40 | 508 | 5740 | 23.3 |
| 45 | 459 | 6530 | 26.4 |
| 50 | 413 | 7370 | 29.4 |
| 55 | 372 | 8130 | 32.1 |
| 60 | 334 | 8900 | 34.9 |
| 65 | 299 | 9650 | 37.6 |
| 70 | 268 | 10400 | 40.1 |
| 75 | 240 | 11140 | 42.5 |
| 80 | 215 | 11850 | 45.0 |
| 85 | 192 | 12610 | 47.4 |
| 90 | 172 | 13310 | 49.7 |

Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ____th meridian
4. El. of Station
5. Method of obs., e.g., rawinsonde, rawin, pibal
6. Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Surface
Termination
Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3690<br>5755 | 20 | [illegible] | 22.8 | | [illegible] | 263.9 | 20 | 260 | 8.7 |
| | 3870<br>6025 | 21 | [illegible] | 22.7 | | [illegible] | 263.8 | 21 | 266 | 10.0 |
| | 4050<br>6295 | 22 | [illegible] | 22.6 | | [illegible] | 264.1 | 22 | 267 | 11.4 |
| | 4230<br>6565 | 23 | [illegible] | 22.5 | | 13700 | 264.2 | 23 | 261 | 8.7 |
| | 4410<br>6835 | 24 | [illegible] | 22.5 | | [illegible] | 264.2 | 24 | 264 | 10.1 |
| | 4590<br>7105 | 25 | [illegible] | 22.4 | | [illegible] | 264.2 | 25 | [illegible] | 10.8 |
| | 4770<br>7375 | 26 | [illegible] | 22.6 | | 15500 | 264.0 | 26 | 256 | 10.6 |
| | 4950<br>7645 | 27 | [illegible] | 22.4 | | [illegible] | 263.5 | 27 | 254 | 12.7 |
| | 5130<br>7915 | 28 | 6950 | 22.2 | | 17000 | 263.0 | 28 | 247 | 12.6 |
| | 5310<br>8185 | 29 | 7250 | 22.0 | | 17800 | 262.0 | 29 | | |
| | 5490<br>8455 | 30 | | 21.7 | | | 261.0 | 30 | 242 | 17.5 |
| | 5670<br>8730 | 31 | [illegible] | 21.5 | | [illegible] | 259.9 | 31 | | |
| | 5850<br>9005 | 32 | | 21.4 | | | 258.9 | 32 | 238 | 14.0 |
| | 6030<br>9285 | 33 | [illegible] | 21.2 | | 21100 | 258.4 | 33 | | |
| | 6210<br>9565 | 34 | | 21.0 | | | 257.9 | 34 | 247 | 16.5 |
| | 6390<br>9850 | 35 | [illegible] | 20.8 | | 23400 | 257.5 | 35 | | |
| | 6570<br>10135 | 36 | | 20.6 | | | 257.3 | 36 | 252 | 16.6 |
| | 6750<br>10420 | 37 | [illegible] | 20.4 | | 25400 | 257.1 | 37 | | |
| | 6930<br>10710 | 38 | | 20.2 | | | 257.1 | 38 | 255 | 17.3 |
| | 7110<br>11005 | 39 | [illegible] | 20.0 | | [illegible] | 257.1 | 39 | | |
| | 7290<br>11300 | 40 | | 19.70 | | | 257.0 | 40 | 255 | 20.4 |
| | 7470<br>11595 | 41 | [illegible] | 19.40 | | [illegible] | 256.9 | 41 | | |
| | 7650<br>11890 | 42 | | 19.15 | | | 256.8 | 42 | 251 | 22.3 |
| | 7830<br>12185 | 43 | [illegible] | 18.85 | | [illegible] | 256.5 | 43 | | |
| | 8010<br>12480 | 44 | | 18.55 | | | 256.3 | 44 | 252 | 24.4 |
| | 8190<br>12775 | 45 | | 18.25 | | [illegible] | 256.3 | 45 | | |
| | 8370<br>13075 | 46 | | 18.05 | | | 256.1 | 46 | 252 | 21.5 |
| | 8550<br>13375 | 47 | [illegible] | 17.90 | | [illegible] | 255.9 | 47 | | |
| | 8730<br>13675 | 48 | | 17.75 | | | 255.6 | 48 | 245 | 21.7 |
| | 8910<br>13975 | 49 | [illegible] | 17.66 | | 41700 | 255.3 | 49 | | |
| | 9090<br>14275 | 50 | [illegible] | 17.75 | | [illegible] | 254.8 | 50 | 230 | 14.2 |

| | | | |
|---|---|---|---|
| 95 | 153 | 14000 | 51.9 |
| 100 | 136 | 14800 | 54.0 |
| 105 | 121 | 15520 | 56.5 |
| 110 | 107 | 16240 | 59.0 |
| 115 | 93 | 17110 | 61.7 |
| 120 | 80 | 18050 | 64.8 |
| 125 | 68 | 19080 | 68.4 |
| 130 | 55 | 20420 | 72.5 |
| 135 | 42 | 22200 | 77.7 |
| 140 | 29 | 24600 | 84.6 |
| 145 | 16 | 28650 | 96.6 |
| x 147.0 | 10 | 31785 | 106.3 |

Punched Card Data

| Altitudes | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitudes | Direction (degrees) | Speed (m.p.s.) |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 2 | 16 | Type of equipment | | 2 |
| sfc. | 240 | 3 | 17-21 | 7 | [illegible] | [illegible] |
| 150 m. | 245 | 6 | 22-26 | 8 | [illegible] | [illegible] |
| 300 m. | [illegible] | 9 | 27-31 | 9 | [illegible] | [illegible] |
| 0.5 | [illegible] | 10 | 32-36 | 10 | 255 | [illegible] |
| 1.0 | [illegible] | 10 | 37-41 | 11 | [illegible] | [illegible] |
| 1.5 | [illegible] | 10 | 42-46 | 12 | [illegible] | [illegible] |
| 2.0 | 241 | 9 | 47-51 | 13 | [illegible] | 18 |
| 2.5 | 241 | 10 | 52-56 | 14 | [illegible] | [illegible] |
| 3 | 241 | 9 | 57-61 | 15 | [illegible] | 10 |
| 4 | 262 | 11 | 62-66 | 16 | 248 | 1 |
| 5 | 262 | 9 | 67-71 | 17 | [illegible] | [illegible] |
| 6 | 263 | 11 | 72-76 | 18 | [illegible] | |

PP

Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22586 | 00951 | 2518 | 2 2619 | [illegible] | 4 2621 | [illegible] | 6 2719 | 2618 | 8 [illegible] |
| [illegible] | 0 [illegible] | 2 [illegible] | 4 2620 | 6 [illegible] | 8 2720 | 02521 | 6 32526 | 52432 | [illegible] |
| [illegible] | [illegible] | [illegible] | 02419 | [illegible] | | | | | |
| [illegible] | [illegible] | [illegible] | [illegible] | 02906 | 00912 | 00425 | 00137 | 00134 | 40934 |
| | | | | | | | | | |

Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Max. wind speed (m.p.s.) and dir. (degrees) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Enter check if additional levels appear on reverse side. | | |

Reason for termination [illegible]

Computer [illegible]

Verifier [illegible]

4

Identification

Portland, Maine (City Airport)
43° 39'N 70° 19'W 75th Mer.
Rawin [illegible] 20m

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

# WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual time __th mer. | 1964 | JUL | 18 | [illegible] |
| Scheduled (G.M.T.) | 1964 | JUL | 18 | [illegible] |

Ascension No. 798

Type of balloon

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle ° Observed | Elevation angle ° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction ° 360° = N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sfc. | [illegible] | 4.6 |
| | 216 / [illegible] | 1 | [illegible] | [illegible] | | 400 | 241.2 | 1 | 213 | 6.4 |
| | 414 / [illegible] | 2 | [illegible] | [illegible] | | 750 | 242.9 | 2 | 245 | 4.4 |
| | 612 / [illegible] | 3 | [illegible] | [illegible] | | 850 | 230.3 | 3 | 253 | 4.1 |
| | 801 / [illegible] | 4 | [illegible] | [illegible] | | 1140 | [illegible] | 4 | 259 | 4.3 |
| | 990 / [illegible] | 5 | [illegible] | [illegible] | | 1410 | 252.5 | 5 | 239 | 4.8 |
| | 1170 / 1880 | 6 | [illegible] | [illegible] | | 1710 | [illegible] | 6 | 248 | 5.6 |
| | [illegible] / 2170 | 7 | [illegible] | [illegible] | | [illegible] | [illegible] | 7 | 270 | 5.0 |
| | [illegible] / 2455 | 8 | [illegible] | [illegible] | | [illegible] | [illegible] | 8 | 290 | 3.4 |
| | 1710 / 2740 | 9 | [illegible] | [illegible] | | 2330 | 246.0 | 9 | 285 | 4.9 |
| | 1890 / 3020 | 10 | [illegible] | [illegible] | | 2580 | 250.2 | 10 | 281 | 4.5 |
| | 2070 / 3360 | 11 | [illegible] | [illegible] | | 2790 | 253.0 | 11 | 268 | 3.3 |
| | 2250 / 3580 | 12 | [illegible] | [illegible] | | [illegible] | 252.8 | 12 | 257 | 2.6 |
| | 2430 / 3855 | 13 | [illegible] | [illegible] | | 3110 | 253.3 | 13 | 256 | 4.5 |
| | 2610 / 4130 | 14 | 3980 | [illegible] | | 3500 | 253.1 | 14 | 265 | 6.8 |
| | 2790 / 4405 | 15 | 4270 | [illegible] | | 3900 | [illegible] | 15 | 265 | 7.6 |
| | 2970 / 4675 | 16 | [illegible] | [illegible] | | [illegible] | 255.1 | 16 | 266 | 7.5 |
| | 3150 / 4945 | 17 | [illegible] | [illegible] | | [illegible] | 256.3 | 17 | 265 | 7.5 |
| | 3330 / 5215 | 18 | 5190 | [illegible] | | 5300 | 256.5 | 18 | 266 | 9.3 |
| | 3510 / 5485 | 19 | [illegible] | [illegible] | | 5700 | 258.3 | 19 | 272 | 9.3 |
| | 3690 / 5755 | 20 | [illegible] | [illegible] | | [illegible] | 259.5 | 20 | 278 | 9.4 |
| | 3870 / 6025 | 21 | [illegible] | [illegible] | | [illegible] | 261.2 | 21 | 280 | 8.8 |
| | 4050 / 6295 | 22 | [illegible] | [illegible] | | [illegible] | 262.2 | 22 | 272 | 7.5 |
| | 4230 / 6565 | 23 | [illegible] | [illegible] | | [illegible] | 262.2 | 23 | 261 | 5.1 |
| | 4410 / 6835 | 24 | [illegible] | [illegible] | | [illegible] | 262.0 | 24 | 252 | 2.3 |
| | 4590 / 7105 | 25 | 7270 | [illegible] | | [illegible] | [illegible] | 25 | | |
| | 4770 / 7375 | 26 | | 44.0 | | | 260.2 | 26 | 242 | 5.6 |
| | 4950 / 7645 | 27 | 7710 | [illegible] | | 9100 | [illegible] | 27 | | |
| | 5130 | 28 | | 44.0 | | | [illegible] | 28 | 229 | 2.9 |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| 5 | 971 | 250 | 0.9 |
| 10 | [illegible] | 1010 | 3.5 |
| 15 | 852 | 1910 | 5.9 |
| 20 | [illegible] | 2590 | [illegible] |
| 25 | 711 | 3050 | [illegible] |
| 30 | 654 | 3760 | [illegible] |
| 35 | 601 | 4420 | 15.7 |
| 40 | 551 | 5100 | 18.0 |
| 45 | 504 | 5500 | 20.3 |
| 50 | 461 | 6500 | 22.6 |
| 55 | 421 | 7190 | 24.7 |
| 60 | 384 | 7770 | 26.7 |
| 65 | 350 | 8550 | 28.7 |
| 70 | 319 | 9190 | [illegible] |
| 75 | 291 | 9820 | 32.5 |
| 80 | 264 | 10500 | [illegible] |
| 85 | 240 | 11130 | 36.3 |
| 90 | 216 | 11810 | 38.0 |
| 95 | 195 | [illegible] | 39.9 |
| 100 | 174 | 13200 | 41.7 |
| 105 | 154 | [illegible] | 43.6 |
| 110 | [illegible] | [illegible] | [illegible] |
| 115 | 116 | 15770 | 48.0 |
| 120 | [illegible] | | |
| 125 | | | |
| 130 | | | |
| 135 | | | |
| 140 | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [illegible] | 25 | [illegible] | [illegible] | | | | | | |
| | 4770 7375 | 26 | | 41.0 | | | 1602 | 26 | 242 | 8.6 |
| | 4950 7645 | 27 | 7810 | 40.9 | | 9100 | 259.4 | 27 | | |
| | 5130 7915 | 28 | | 41.0 | | | 257.4 | 28 | 229 | 7.9 |
| | 5310 8185 | 29 | 8550 | 41.0 | | 9900 | 256.3 | 29 | | |
| | 5490 8455 | 30 | | 41.1 | | | 255.2 | 30 | 224 | 3.9 |
| | 5670 8730 | 31 | 9270 | 41.9 | | 10200 | 255.0 | 31 | | |
| | 5850 9005 | 32 | | 42.7 | | | 255.0 | 32 | 228 | 1.9 |
| | 6030 9285 | 33 | [illegible] | 43.5 | | 10300 | 255.6 | 33 | | |
| | 6210 9565 | 34 | | 44.5 | | | 256.5 | 34 | 345 | 4.2 |
| | 6390 9850 | 35 | 10250 | 45.7 | | 10500 | 258.1 | 35 | | |
| | 6570 10135 | 36 | | 46.4 | | | 261.0 | 36 | 3 | 8.8 |
| | 6750 10420 | 37 | 11490 | 48.1 | | 10500 | 265.8 | 37 | | |
| | 6930 10710 | 38 | | 48.9 | | | 265.0 | 38 | 342 | 2.7 |
| | 7110 11005 | 39 | 12200 | 49.4 | | 10900 | 265.4 | 39 | | |
| | 7290 11300 | 40 | | 50.4 | | | 264.6 | 40 | 240 | 8.6 |
| | 7470 11595 | 41 | 12910 | 50.5 | | 10700 | 265.6 | 41 | | |
| | 7650 11890 | 42 | 13350 | 51.0 | | 10800 | 266.2 | 42 | 260 | 1.9 |
| | 7830 12185 | 43 | 13760 | 51.5 | | 10900 | 265.3 | 43 | | |
| | 8010 12480 | 44 | 14180 | 51.8 | | 11300 | 265.6 | 44 | 226 | 4.6 |
| | 8190 12775 | 45 | | 52.0 | | | 264.8 | 45 | | |
| | 8370 13075 | 46 | 14940 | 52.0 | | 11700 | 262.7 | 46 | 222 | 7.7 |
| | 8550 13375 | 47 | | 51.5 | | | 264.4 | 47 | | |
| | 8730 13675 | 48 | 15720 | 51.1 | | 12700 | 260.4 | 48 | 232 | 9.6 |
| | 8910 13975 | 49 | | | | | | 49 | | |
| | 9090 14275 | 50 | | | | | | 50 | | |

| | | | |
|---|---|---|---|
| 140 | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| 163 | 110 | 11050 | 49.8 |

Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 17741 | 2115 | [2] 2409 | 2508 | [4] 2409 | 2410 | [6] 2511 | 2208 | [8] 2907 |
| 2508 | 0 2707 | 22508 | 42614 | 62615 | 8 2718 | 02817 | 532306 | 52417 | 02307 |
| 52512 | 43000 | 52456 | 02716 | 12312 | ① | | | | |
| [illegible] | [illegible] | [illegible] | [illegible] | | | | | | |
| | | | | | | | | | |

Punched Card Data

| Altitude # | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude # | Direction (degrees) | Speed (m.p.s.) |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 8 | 16 | Type of equipment | | 8 |
| sfc. | 181 | 5 | 17-21 | 7 | 241 | 3 |
| 150 M. | 191 | 6 | 22-26 | 8 | 233 | 8 |
| 300 M. | 210 | 6 | 27-31 | 9 | 226 | 4 |
| 0.5 | 238 | 5 | 32-36 | 10 | 317 | 3 |
| 1.0 | 247 | 4 | 37-41 | 11 | 360 | 8 |
| 1.5 | 257 | 5 | 42-46 | 12 | 325 | 3 |
| 2.0 | 270 | 5 | 47-51 | 13 | 259 | 2 |
| 2.5 | 285 | 4 | 52-56 | 14 | 231 | 4 |
| 3 | 273 | 4 | 57-61 | 15 | 224 | 8 |
| 4 | 264 | 7 | 62-66 | 16 | | |
| 5 | 264 | 9 | 67-71 | 17 | | |
| 6 | 276 | 4 | 72-76 | 18 | | |

Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

Identification

Portland, Maine (City Airport)
[illegible] 75th Mer.
Rawin WBRT 60 Elev. 20m.

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

# WINDS-ALOFT COMPUTATION SHEET

(LANDSTATION FORM)

WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual time (75th mer.) | 1964 | JUL | 18 | [illegible] |
| Scheduled (G.M.T.) | 1964 | JUL | 18 | [illegible] |

Ascension No. 777

Type of balloon [illegible]

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle ° Observed | Elevation angle ° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction ° 360° = N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sfc. | 230 | 5.1 |
| | 216 / 350 | 1 | [illegible] | 23.0 | | 620 | 235.0 | 1 | 242 | 12.3 |
| | 414 / 670 | 2 | [illegible] | 21.5 | | 1490 | 242.0 | 2 | 253 | 12.8 |
| | 612 / 980 | 3 | [illegible] | 21.7 | | 2200 | 245.1 | 3 | 256 | 12.6 |
| | 801 / 1285 | 4 | 1180 | 21.6 | | 2960 | 248.5 | 4 | 258 | 13.0 |
| | 990 / 1590 | 5 | 1480 | 21.4 | | 3740 | 250.9 | 5 | 261 | 13.2 |
| | 1170 / 1880 | 6 | 1780 | 21.2 | | 4540 | 252.9 | 6 | 269 | 14.3 |
| | 1350 / 2170 | 7 | 2030 | 20.6 | | 5400 | 256.3 | 7 | 273 | 15.0 |
| | 1530 / 2455 | 8 | [illegible] | 20.0 | | 6250 | 259.0 | 8 | 273 | 15.7 |
| | 1710 / 2740 | 9 | 2550 | 19.60 | | 7200 | 260.5 | 9 | 271 | 13.0 |
| | 1890 / 3020 | 10 | 2820 | 19.80 | | 7800 | 266.6 | 10 | 269 | 10.0 |
| | 2070 / 3300 | 11 | [illegible] | 20.0 | | 8400 | 261.9 | 11 | 269 | 10.0 |
| | 2260 / 3580 | 12 | 3350 | [illegible] | | 9000 | 262.3 | 12 | 266 | 11.7 |
| | 2430 / 3855 | 13 | 3600 | [illegible] | | 9800 | 262.3 | 13 | 257 | 11.7 |
| | 2610 / 4130 | 14 | 3880 | 20.5 | | 10400 | 261.7 | 14 | 257 | 10.0 |
| | 2790 / 4405 | 15 | 4150 | 20.6 | | 11000 | 261.4 | 15 | 263 | 10.0 |
| | 2970 / 4675 | 16 | 4440 | 20.9 | | 11500 | 261.9 | 16 | 264 | 9.1 |
| | 3150 / 4945 | 17 | 4710 | 21.2 | | 12100 | 262.0 | 17 | 260 | 8.3 |
| | 3330 / 5215 | 18 | 4990 | 21.4 | | 12600 | 262.2 | 18 | 276 | 8.5 |
| | 3510 / 5485 | 19 | [illegible] | 21.8 | | 13100 | 263.2 | 19 | 288 | 10.0 |
| | 3690 / 5755 | 20 | 5540 | 22.0 | | 13700 | 266.6 | 20 | 293 | 9.6 |
| | 3870 / 6025 | 21 | 5810 | 22.4 | | 14100 | 265.6 | 21 | 293 | 8.6 |
| | 4050 / 6295 | 22 | 6110 | 22.7 | | 14600 | 266.6 | 22 | 293 | [illegible] |
| | 4230 / 6565 | 23 | 6410 | 22.9 | | 15100 | 267.4 | 23 | 292 | 8.3 |
| | 4410 / 6835 | 24 | 6700 | 23.3 | | 15500 | 268.1 | 24 | 289 | 9.6 |
| | 4590 / 7105 | 25 | 7000 | 23.6 | | 15950 | 268.2 | 25 | | |
| | 4770 / 7375 | 26 | | 23.8 | | | 269.2 | 26 | 295 | 9.9 |
| | 4950 / 7645 | 27 | 7520 | 24.1 | | 16200 | 270.1 | 27 | | |
| | [illegible] | | | [illegible] | | | [illegible] | 28 | [illegible] | [illegible] |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| 5 | 994 | 390 | 0.8 |
| 10 | 905 | 1030 | 3.0 |
| 15 | 828 | [illegible] | 6.4 |
| 20 | 762 | 2490 | 8.4 |
| 25 | 690 | 3250 | 11.6 |
| 30 | 634 | 4000 | 16.4 |
| 35 | 577 | 4760 | 17.2 |
| 40 | 525 | 5490 | 19.9 |
| 45 | 477 | 6270 | 22.4 |
| 50 | 433 | 6960 | 24.6 |
| 55 | 392 | 7700 | 27.4 |
| 60 | 355 | 8400 | 30.0 |
| 65 | 321 | 9110 | 32.8 |
| 70 | 291 | 9800 | 35.2 |
| 75 | 263 | 10500 | 37.7 |
| 80 | 238 | 11140 | 40.2 |
| 85 | 215 | 11800 | 42.5 |
| 90 | 194 | 12470 | 44.8 |
| 95 | 175 | 13125 | 47.1 |
| 100 | 157 | 13760 | 49.4 |
| 105 | 139 | 14580 | 52.0 |
| 110 | 123 | 15370 | 54.6 |
| 115 | 108 | 16150 | 57.4 |
| 120 | 94 | 17050 | 60.4 |
| 125 | 79 | 18120 | 63.7 |
| 130 | 64 | 19440 | 67.5 |
| 135 | 50 | 21036 | 72.2 |
| 140 | 35 | 23370 | 75.6 |
| 145 | 20 | 27044 | 79.0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [illegible] 7645 | 27 | 7530 | 24.1 | | 16200 | 270.1 | 27 | | |
| | 5150 7915 | 28 | | 24.2 | | | 271.0 | 28 | 297 | 9.1 |
| | 5310 8165 | 29 | 8000 | 24.5 | | 17600 | 271.6 | 29 | | |
| | 5490 8455 | 30 | | 24.4 | | | 272.2 | 30 | 287 | 10.9 |
| | 5670 8730 | 31 | 8150 | 24.5 | | 18900 | 272.6 | 31 | | |
| | 5850 9005 | 32 | | 24.8 | | | 272.6 | 32 | 277 | 7.5 |
| | 6030 9285 | 33 | 9210 | 24.9 | | 19800 | 272.8 | 33 | | |
| | 6210 9565 | 34 | | 25.0 | | | 273.5 | 34 | 294 | 12.0 |
| | 6390 9850 | 35 | 9760 | 24.6 | | 21200 | 274.4 | 35 | | |
| | 6570 10135 | 36 | | 24.3 | | | 275.5 | 36 | 317 | 9.9 |
| | 6750 10420 | 37 | [illegible] | 24.9 | | 22000 | 276.1 | 37 | | |
| | 6930 10710 | 38 | | 24.9 | | | 277.2 | 38 | 302 | 13.0 |
| | 7110 11005 | 39 | 10880 | 24.9 | | 23500 | 278.1 | 39 | | |
| | 7290 11300 | 40 | | 24.9 | | | 279.1 | 40 | 317 | 9.8 |
| | 7470 11595 | 41 | 11400 | 24.9 | | 24400 | 280.0 | 41 | | |
| | 7650 11890 | 42 | | 24.5 | | | 281.2 | 42 | 320 | 14.0 |
| | 7830 12185 | 43 | 11980 | 24.5 | | 25700 | 282.5 | 43 | | |
| | 8010 12480 | 44 | | 25.0 | | | [illegible] | 44 | 345 | 14.2 |
| | 8190 12775 | 45 | 12500 | 25.1 | | 26500 | 285.7 | 45 | | |
| | 8370 13075 | 46 | | 25.2 | | | 287.1 | 46 | 329 | 13.4 |
| | 8550 13375 | 47 | 13070 | [illegible] | | 27600 | 287.9 | 47 | | |
| | 8730 13675 | 48 | [illegible] | [illegible] | | 28100 | [illegible] | 48 | 317 | 7.2 |
| | 8910 13975 | 49 | 13590 | [illegible] | | 28400 | 288.7 | 49 | | |
| | 9090 14275 | 50 | 14000 | 25.3 | | 28900 | 288.4 | 50 | 277 | 7.0 |

| | | | |
|---|---|---|---|
| 145 | 20 | 27044 | 79.0 |
| | | | |
| | | | |
| | | | |
| [illegible] | 17 | 28130 | 92.0 |

## Punched Card Data

| Altitude # | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude # | Direction (degrees) | Speed (m.p.s.) |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 8 | 16 | Type of equipment | | 8 |
| sfc. | 230 | 5 | 17-21 | 7 | 291 | 8 |
| 150 M. | 235 | 10 | 22-26 | 8 | 294 | 8 |
| 300 M. | 242 | 12 | 27-31 | 9 | 277 | 8 |
| 0.5 | 249 | 13 | 32-36 | 10 | 312 | 10 |
| 1.0 | 256 | 13 | 37-41 | 11 | 310 | 11 |
| 1.5 | 260 | 13 | 42-46 | 12 | 320 | 14 |
| 2.0 | 272 | 15 | 47-51 | 13 | 324 | 12 |
| 2.5 | 271 | 14 | 52-56 | 14 | 279 | 7 |
| 3 | 268 | 10 | 57-61 | 15 | 280 | 10 |
| 4 | 256 | 10 | 62-66 | 16 | 265 | 8 |
| 5 | 275 | 5 | 67-71 | 17 | 280 | 7 |
| 6 | 293 | 9 | 72-76 | 18 | 280 | 5 |

## Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | 22523 | 2624 | 42625 | 2625 | 62728 | 2729 | 82728 |
| [illegible] | 02719 | 22623 | 42619 | 62716 | 82919 | 02918 | 532915 | 53015 | 02818 |
| [illegible] | [illegible] | 53014 | 02820 | 32715 | ① | | | | |
| [illegible] | [illegible] | [illegible] | [illegible] | 02809 | 00505 | 00719 | 00826 | 20822 | ① |
| | | | | | | | | | |

## Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

Identification
[illegible]
[illegible]
Rawin WBRT 60' Elev. 20m.

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

# WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual time __th mer. | 1964 | JUL | 1[illegible] | 0000 |
| Scheduled (G.M.T.) | 1964 | JUL | 1[illegible] | 0000 |

Ascension No. [illegible]

Type of balloon :

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle ° Observed | Elevation angle ° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction ° 360° = N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sfc. | 250 | 7.2 |
| | 216 / [illegible] | 1 | 300 | 25.0 | | 790 | 250.0 | 1 | 254 | 14.8 |
| | 414 / [illegible] | 2 | 600 | 22.2 | | 1680 | 253.5 | 2 | 260 | 16.7 |
| | 612 / 980 | 3 | 950 | 19.85 | | 2690 | 257.6 | 3 | 264 | 17.7 |
| | 801 / 1285 | 4 | 1250 | 18.84 | | 3960 | 260.3 | 4 | 26[illegible] | 20.4 |
| | 990 / 1585 | 5 | [illegible] | 18.30 | | 5100 | 263.4 | 5 | 275 | 16.0 |
| | 1170 / 1880 | 6 | 2000 | 18.[illegible] | | 5800 | 265.1 | 6 | 281 | 10.3 |
| | 1350 / 2170 | 7 | [illegible] | [illegible] | | 6300 | 266 | 7 | 284 | 9.7 |
| | 1530 / 2455 | 8 | [illegible] | 21.2 | | 6900 | 268.3 | 8 | 288 | 10.6 |
| | 1710 / 2740 | 9 | [illegible] | 22.2 | | 7500 | 270.4 | 9 | 292 | 11.0 |
| | 1890 / 3020 | 10 | [illegible] | 23.0 | | 8160 | 272.2 | 10 | 290 | 8.3 |
| | 2070 / 3300 | 11 | [illegible] | 24.3 | | 8430 | 273.1 | 11 | 289 | 5.3 |
| | 2250 / 3580 | 12 | [illegible] | 25.3 | | 8700 | 273.6 | 12 | 274 | 5.7 |
| | 2430 / 3855 | 13 | [illegible] | 26.2 | | 9100 | 273.6 | 13 | 266 | 8.3 |
| | 2610 / 4130 | 14 | [illegible] | 26.4 | | 9700 | 273.9 | 14 | 2[illegible] | 10.0 |
| | 2790 / 4405 | 15 | 5180 | 26.6 | | 10300 | 273.4 | 15 | 2[illegible] | 11.0 |
| | 2970 / 4675 | 16 | 5590 | 26.0 | | 11000 | 273.8 | 16 | 287 | 10.3 |
| | 3150 / 4945 | 17 | 5970 | 27.1 | | 11500 | 274.4 | 17 | 298 | 8.7 |
| | 3330 / 5215 | 18 | 6360 | 27.8 | | 12000 | 275.0 | 18 | 299 | 9.7 |
| | 3510 / 5485 | 19 | [illegible] | 28.2 | | 12600 | 276.3 | 19 | 303 | 12.2 |
| | 3690 / 5755 | 20 | [illegible] | 27.9 | | 13300 | 278.4 | 20 | 295 | 14.1 |
| | 3870 / 6025 | 21 | [illegible] | 27.8 | | 14200 | 278.5 | 21 | | |
| | 4050 / 6295 | 22 | | 27.7 | | | 278.7 | 22 | 291 | 14.6 |
| | 4230 / 6565 | 23 | 8220 | 27.4 | | 15900 | 279.8 | 23 | | |
| | 4410 / 6835 | 24 | | 27.1 | | | 279.9 | 24 | 280 | 12.8 |
| | 4590 / 7105 | 25 | 8950 | 27.0 | | 17400 | 280.0 | 25 | | |
| | 4770 / 7375 | 26 | | 26.5 | | | 279.9 | 26 | 280 | 17.6 |
| | 4950 / 7645 | 27 | 9680 | 26.2 | | 19600 | 280.0 | 27 | | |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| 5 | 974 | 370 | 1.2 |
| 10 | 890 | 1170 | 3.5 |
| 15 | 813 | 1950 | 5.9 |
| 20 | 742 | 2700 | 8.0 |
| 25 | 677 | 3470 | 10.0 |
| 30 | 617 | 4240 | 12.3 |
| 35 | 562 | 4970 | 14.4 |
| 40 | 511 | 5700 | 16.3 |
| 45 | 464 | 6430 | 18.2 |
| 50 | 422 | 7170 | 20.0 |
| 55 | 383 | 7880 | 21.9 |
| 60 | 348 | 8590 | 24.0 |
| 65 | 316 | 9230 | 26.0 |
| 70 | 287 | 9910 | 27.8 |
| 75 | 261 | 10530 | 29.4 |
| 80 | 237 | 11200 | 31.0 |
| 85 | 215 | 11830 | 32.8 |
| 90 | 194 | 12500 | 34.5 |
| 95 | 175 | 13130 | 36.2 |
| 100 | 157 | 13800 | 37.8 |
| 105 | 140 | 14520 | 39.5 |
| 110 | 123 | 15360 | 41.3 |
| 115 | 106 | 16300 | 43.0 |
| 120 | 90 | 17310 | 45.5 |
| 125 | 74 | 18530 | 48.6 |
| 130 | 58 | 20080 | 52.7 |
| 135 | 41 | 22330 | 58.4 |
| 140 | 24 | 25800 | 67.4 |
| 145 | 5 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4950 7415 | 27 | 9680 | 26.2 | | 19600 | 280.1 | 27 | | |
| | 5130 [illegible] | 28 | | 25.7 | | | 280.3 | 28 | 280 | 14.3 |
| | 5310 8165 | 29 | 10400 | 25.9 | | 21300 | 280.0 | 29 | | |
| | 5490 8455 | 30 | | 25.6 | | | 279.8 | 30 | 278 | 17.6 |
| | 5670 8750 | 31 | 11120 | 25.3 | | 23400 | 279.6 | 31 | | |
| | 5850 9005 | 32 | | 25.0 | | | 279.5 | 32 | 279 | 18.0 |
| | 6030 9285 | 33 | 11880 | 24.8 | | 25600 | 279.5 | 33 | | |
| | 6210 9565 | 34 | | 24.9 | | | 279.6 | 34 | 283 | 18.2 |
| | 6390 9850 | 35 | 12690 | 24.5 | | 27700 | 279.8 | 35 | | |
| | 6570 10135 | 36 | 13190 | 24.2 | | 29200 | 279.5 | 36 | 284 | 21.2 |
| | 6750 10420 | 37 | 13560 | 23.9 | | 30400 | 279.9 | 37 | | |
| | 6930 10710 | 38 | 14000 | 23.9 | | 31400 | 280.8 | 38 | 293 | 16.5 |
| | 7110 11005 | 39 | | 24.1 | | | 281.2 | 39 | | |
| | 7290 11300 | 40 | 14820 | 24.3 | | 33050 | 281.1 | 40 | 279 | 13.3 |
| | 7470 11595 | 41 | | 24.4 | | | 280.9 | 41 | | |
| | 7650 11890 | 42 | 15670 | 24.9 | | 33700 | 280.9 | 42 | 266 | 12.0 |
| | 7830 12185 | 43 | | 24.9 | | | 280.8 | 43 | | |
| | 8010 12480 | 44 | 16480 | 25.3 | | 34600 | 280.3 | 44 | 283 | 9.3 |
| | 8190 12775 | 45 | | 25.4 | | | 280.2 | 45 | | |
| | 8370 13075 | 46 | 17400 | 25.6 | | 36000 | 280.6 | 46 | 296 | 9.6 |
| | 8550 13375 | 47 | | 26.0 | | | 280.8 | 47 | | |
| | 8730 13675 | 48 | 18290 | 26.5 | | 36300 | 281.0 | 48 | 304 | 4.0 |
| | 8910 [illegible] | 49 | | 26.6 | | | 281.2 | 49 | | |
| | 9090 14275 | 50 | 19130 | 27.0 | | 36800 | 281.4 | 50 | 296 | 3.3 |

Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7660 | 03351 | 2625 | 2 2632 | 2734 | 4 2738 | 2735 | 6 2826 | 2920 | 8 2920 |
| 2921 | 02922 | 2 2915 | 42715 | 6 2720 | 8 3021 | 0 3018 | 3 3027 | 53029 | 02834 |
| 2835 | 02835 | 52925 | 63724 | 37828 | | | | | |
| 6 | 22000 | 00911 | 99996 | 03109 | 73506 | 00712 | 80816 | 00820 | 70917 |
| 00120 | | | | | | | | | |

| | | | |
|---|---|---|---|
| 145 | C | | |
| | | | |
| | | | |
| | | | |
| 141.418 | | 27800 | 71.2 |

Punched Card Data

| Altitude # | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude # | Direction (degrees) | Speed (m.p.s.) |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 8 | 16 | Type of equipment | | 8 |
| sfc. | 250 | 7 | 17-21 | 7 | 278 | 15 |
| 150 M. | 252 | 10 | 22-26 | 8 | 288 | 14 |
| 300 M. | 255 | 14 | 27-31 | 9 | 279 | 16 |
| 0.5 | 258 | 16 | 32-36 | 10 | 280 | 15 |
| 1.0 | 268 | 18 | 37-41 | 11 | 281 | 18 |
| 1.5 | 272 | 19 | 42-46 | 12 | 283 | 18 |
| 2.0 | 283 | 11 | 47-51 | 13 | 284 | 21 |
| 2.5 | 288 | 10 | 52-56 | 14 | 294 | 17 |
| 3 | 288 | 11 | 57-61 | 15 | 277 | 13 |
| 4 | 256 | 5 | 62-66 | 16 | 272 | 11 |
| 5 | 277 | 11 | 67-71 | 17 | 288 | 10 |
| 6 | 298 | 9 | 72-76 | 18 | 302 | 6 |

Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

September 16, 1964

Dear Mr. [redacted]

This is in reply to your recent letter in which you detailed the observation of an Unidentified Flying Object.

Our Project Blue Book office at Wright-Patterson Air Force Base, Ohio, has attempted an evaluation of this observation from the details you gave. The motion and description of the object is comparable to that of a radiosonde or a rawinsonde balloon with a light attached.

Inclosed is a summary of information on Project Blue Book, the program for the investigation and evaluation of UFO reports. We think this information will be of interest to you.

Sincerely,

MASTON M. JACKS
Major, USAF
Public Information Division
Office of Information

Inclosure

Mr. [redacted]
Lynn, Massachusetts

WB FORM 610-12
(6-43)
USCOMM-WB-DC

| *Identification | U.S. DEPARTMENT OF COMMERCE WEATHER BUREAU | | Year | Month | Day | Time |
|---|---|---|---|---|---|---|
| Portand, Maine (City Airport)<br>43° 39'N 70° 19'W 75th Mer.<br>Rawin WBRT 60 Eev. 20m. | WINDS-ALOFT COMPUTATION SHEET<br>(LANDSTATION FORM)<br>WBAN-20 | Actual time 75th mer. | 1964 | JUL | 17 | [illegible] |
| | | Scheduled (G.M.T.) | 1964 | JUL | 17 | [illegible] |
| | | Ascension No. 795 | | | | |

Page [illegible]

Type of balloon 600 Gm.

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle ° Observed | Elevation angle ° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction ° 360° = N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sfc. | 200 | 5.1 |
| | 210 / 350 | 1 | 300 | 24.1 | | 670 | 212.0 | 1 | 205 | 9.9 |
| | 414 / 670 | 2 | 600 | 27.0 | | 1170 | 204.8 | 2 | 213 | 7.5 |
| | 612 / 980 | 3 | 900 | 30.3 | | 1540 | 211.2 | 3 | 239 | 7.0 |
| | 801 / 1285 | 4 | 1190 | 31.4 | | 1940 | 217.8 | 4 | 242 | 7.3 |
| | 990 / 1585 | 5 | 1480 | 31.8 | | 2370 | 221.9 | 5 | 239 | 7.7 |
| | 1170 / 1880 | 6 | 1780 | 31.9 | | 2840 | 224.2 | 6 | 241 | 5.7 |
| | 1350 / 2170 | 7 | 2080 | 34.4 | | 3030 | 226.2 | 7 | 235 | 2.6 |
| | 1530 / 2455 | 8 | 2360 | 36.6 | | 3150 | 225.8 | 8 | 212 | 2.0 |
| | 1710 / 2740 | 9 | 2650 | 38.9 | | 3260 | 224.7 | 9 | 208 | 2.0 |
| | 1880 / 3020 | 10 | 2930 | 40.3 | | 3370 | 224.7 | 10 | 226 | 1.6 |
| | 2070 / 3300 | 11 | 3210 | 42.7 | | 3450 | 225.8 | 11 | 243 | 1.8 |
| | 2250 / 3580 | 12 | 3530 | 45.3 | | 3470 | 226.1 | 12 | 268 | 1.1 |
| | 2430 / 3855 | 13 | 3800 | 47.5 | | 3450 | 227.7 | 13 | 298 | 1.0 |
| | 2610 / 4130 | 14 | 4100 | 49.7 | | 3500 | 227.8 | 14 | 248 | 1.3 |
| | 2790 / 4408 | 15 | 4400 | 51.0 | | 3600 | 227.4 | 15 | 252 | 1.9 |
| | 2970 / 4675 | 16 | 4700 | 52.1 | | 3700 | 227.4 | 16 | 254 | 1.8 |
| | 3150 / 4945 | 17 | 5010 | 53.0 | | 3800 | 227.8 | 17 | 265 | 1.6 |
| | 3330 / 5215 | 18 | 5310 | 53.0 | | 3850 | 231.1 | 18 | 292 | 1.7 |
| | 3510 / 5485 | 19 | 5600 | 54.8 | | 39[illegible]0 | 232.4 | 19 | 269 | 2.6 |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| 5 | 974 | 480 | 1.3 |
| 10 | 885 | 1280 | 4.1 |
| 15 | 801 | 2090 | 7.0 |
| 20 | 724 | 2860 | 9.9 |
| 25 | 652 | 3790 | 12.8 |
| 30 | 589 | 4620 | 15.6 |
| 35 | 530 | 5430 | 18.5 |
| 40 | 477 | 6260 | [illegible] |
| 45 | 424 | 7180 | 24.0 |
| 50 | 385 | 7840 | [illegible] |
| 55 | 345 | 8680 | [illegible] |
| 60 | 309 | 9470 | [illegible] |
| 65 | 277 | 10220 | 34.1 |
| 70 | 248 | 10950 | [illegible] |
| 75 | 222 | 11700 | [illegible] |
| 80 | 200 | 12350 | [illegible] |
| 85 | 179 | 13050 | [illegible] |
| 90 | 161 | 13710 | [illegible] |
| 95 | 140 | 14430 | 47 |
| 100 | 129 | 15110 | 49 |
| 105 | 115 | 15810 | [illegible] |

Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, _____th meridian
4. El. of Station
5. Method of obs., e.g., rawinsonde, rawin, pibal
6. Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5755 | 20 | 5890 | [illegible] | | 5180 | 234.0 | 20 | 271 | 4.1 |
| | 3870 6025 | 21 | 6190 | 55.3 | | 5300 | 236.5 | 21 | 267 | 4.9 |
| | 4050 6295 | 22 | 6530 | 55.3 | | 5600 | 235.0 | 22 | 255 | 4.3 |
| | 4230 6565 | 23 | 6830 | 54.9 | | 5800 | 238.5 | 23 | 244 | 4.1 |
| | 4410 6835 | 24 | 7160 | 54.6 | | 5160 | 235.4 | 24 | 242 | 4.1 |
| | 4590 7105 | 25 | 7440 | 54.8 | | 5300 | 238.7 | 25 | | |
| | 4770 7375 | 26 | | 55.4 | | | 249.6 | 26 | 305 | 2.8 |
| | 4950 7645 | 27 | 8050 | 55.6 | | 5550 | 242.9 | 27 | | |
| | 5130 7915 | 28 | | 57.0 | | | 243.5 | 28 | 74 | 2.6 |
| | 5310 8185 | 29 | 8660 | 59.0 | | 5200 | 242.1 | 29 | | |
| | 5490 8455 | 30 | | 63.1 | | | 239.9 | 30 | 75 | 12.0 |
| | 5670 8730 | 31 | 9280 | 65.9 | | 4180 | 236.4 | 31 | | |
| | 5850 9005 | 32 | | 68.9 | | | 236.2 | 32 | 72 | 8.8 |
| | 6030 9285 | 33 | 9880 | 72.8 | | 3160 | 233.6 | 33 | | |
| | 6210 9565 | 34 | | [illegible] | | | 231.7 | 34 | 61 | 12.7 |
| | 6390 9850 | 35 | 10480 | 81.4 | | 1600 | 220.4 | 35 | | |
| | 6570 10135 | 36 | | 59.3 | | | 204.6 | 36 | 70 | 13.8 |
| | 6750 10420 | 37 | 11080 | 56.6 | | 670 | 142.1 | 37 | | |
| | 6930 10710 | 38 | | 83.4 | | | 950 | 38 | 64 | 15.4 |
| | 7110 11005 | 39 | 11700 | 79.9 | | 2100 | 82.2 | 39 | | |
| | 7290 11300 | 40 | | 76.8 | | | 76.1 | 40 | 64 | 11.3 |
| | 7470 11595 | 41 | 12530 | 74.5 | | 3400 | 74.6 | 41 | | |
| | 7650 11890 | 42 | | 72.6 | | | 73.2 | 42 | 51 | 9.1 |
| | 7830 12185 | 43 | 13010 | 71.2 | | 4440 | 69.0 | 43 | | |
| | 8010 12480 | 44 | 13550 | 70.[illegible] | | 4500 | 67.3 | 44 | 51 | 4.6 |
| | 8190 12775 | 45 | 13680 | 70.0 | | 4770 | 66.9 | 45 | | |
| | 8370 13075 | 46 | 14000 | 70.8 | | 4850 | 66.6 | 46 | 107 | 2.1 |
| | 8550 13375 | 47 | | 70.7 | | | 68.4 | 47 | | |
| | 8730 13675 | 48 | 14620 | 71.1 | | 5000 | 67.3 | 48 | 171 | 4.3 |
| | 8910 13975 | 49 | | 71.8 | | | 71.1 | 49 | | |
| | 9090 14275 | 50 | 15380 | 72.7 | | 4750 | 72.9 | 50 | 221 | 6.9 |

· Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Reason for termination: Balloon Burst

Computer [illegible]

Verifier [illegible]

Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72606 | 22411 | 2019 | 2 2115 | 2314 | 4 2414 | 2415 | 6 2411 | 2305 | 8 2104 |
| 2104 | 0 2303 | 22802 | 4 2413 | 6 2603 | 8 2804 | 0 2709 | 3 2408 | 53006 | 5 0711 |
| 90721 | 50722 | 60621 | 50806 | 02713 | 3 2514 | [illegible] | | | |
| 9 6 73 | 72606 | 2211 | [illegible] | 02511 | 22706 | [illegible] | 51038 | 01034 | 808030 |
| | | | | | | | | | |

| | | | |
|---|---|---|---|
| 110 | 185 | 16530 | 5[illegible] |
| 115 | 90 | 17360 | 5[illegible] |
| 120 | 78 | 18240 | 58.8 |
| 125 | 66 | 19300 | 61.9 |
| 130 | 54 | 20590 | 65.5 |
| 135 | 42 | 22190 | 69.9 |
| 140 | 29 | 24180 | 76.5 |
| | | | |
| | | | |
| | | | |
| MB | 19 | 27450 | 87 |

Punched Card Data

| Altitude # | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude # | Direction (degrees) | Speed |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 8 | 16 | Type of equipment | | 8 |
| sfc. | 200 | 5 | 17-21 | 7 | 249 | [illegible] |
| 150 M. | 222 | 7 | 22-26 | 8 | 354 | [illegible] |
| 300 M. | 205 | 10 | 27-31 | 9 | 74 | 1[illegible] |
| 0.5 | 208 | 8 | 32-36 | 10 | 64 | 1[illegible] |
| 1.0 | 240 | 7 | 37-41 | 11 | 68 | 1[illegible] |
| 1.5 | 238 | 8 | 42-46 | 12 | 65 | 1[illegible] |
| 2.0 | 236 | 3 | 47-51 | 13 | 51 | [illegible] |
| 2.5 | 210 | 2 | 52-56 | 14 | 107 | [illegible] |
| 3 | 230 | 2 | 57-61 | 15 | 171 | [illegible] |
| 4 | 265 | 1 | 62-66 | 16 | 277 | [illegible] |
| 5 | 265 | 2 | 67-71 | 17 | 296 | [illegible] |
| 6 | 270 | 4 | 72-76 | 18 | 262 | [illegible] |

Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

WB FORM 610-12
USCOMM-WB-DC

Page II

*Identification: Portland, Maine (City Airport)
43° 39'N 70° 19'W 75th Mer.
Rawin WBRT 60 Elev. 20m.

U.S. DEPARTMENT OF COMMERCE,
WEATHER BUREAU

# WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual time ___th mer. | 1964 | JUL | 18 | [illegible] |
| Scheduled (G.M.T.) | 1964 | JUL | 18 | [illegible] |

Ascension No. 796

Type of balloon: 600 Gram

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle ° Observed | Elevation angle ° Smoothed | Distance from observation point (m.) | Azimuth angle ° |
|---|---|---|---|---|---|---|---|
| | 216 / 350 | 1 | 380 | 23.0 | | 890 | 228.7 |
| | 414 / 670 | 2 | 710 | 25.0 | | 1510 | 226.2 |
| | 612 / 980 | 3 | 1050 | 26.6 | | 2090 | 229.8 |
| | 801 / 1285 | 4 | 1370 | 27.9 | | 2570 | 233.6 |
| | 990 / 1585 | 5 | 1690 | 28.0 | | 3160 | 238.4 |
| | 1170 / 1880 | 6 | 2010 | 29.1 | | 3540 | 243.6 |
| | 1350 / 2170 | 7 | 2330 | 32.6 | | 3620 | 245.6 |
| | 1530 / 2455 | 8 | 2650 | 35.2 | | 3770 | 247.5 |
| | 1710 / 2740 | 9 | 3000 | 37.4 | | 3890 | 249.4 |
| | 1890 / 3020 | 10 | 3330 | 39.0 | | 4080 | 251.1 |
| | 2070 / 3300 | 11 | 3670 | 41.0 | | 4200 | 250.5 |
| | 2250 / 3580 | 12 | 4020 | 42.7 | | 4400 | 252.0 |
| | 2430 / 3855 | 13 | 4380 | 44.0 | | 4500 | 252.1 |
| | 2610 / 4130 | 14 | 4730 | 44.9 | | 4750 | 252.0 |
| | 2790 / 4405 | 15 | 5040 | 46.4 | | 4800 | 250.8 |
| | 2970 / 4675 | 16 | 5370 | 47.4 | | 4900 | 247.5 |
| | 3150 / 4945 | 17 | 5680 | 48.0 | | 5100 | 246.1 |
| | 3330 / 5215 | 18 | 6000 | 48.6 | | 5300 | 246.6 |
| | 3510 / 5485 | 19 | 6350 | 49.2 | | 5500 | 248.6 |

Wind

| Minute | Direction ° 360°= N. | Speed (m.p.s.) |
|---|---|---|
| sfc. | 240 | 3.1 |
| 1 | 226 | 12.6 |
| 2 | 232 | 10.0 |
| 3 | 243 | 9.6 |
| 4 | 254 | 9.5 |
| 5 | 267 | 9.1 |
| 6 | 284 | 5.1 |
| 7 | 292 | 2.9 |
| 8 | 292 | 3.1 |
| 9 | 288 | 3.3 |
| 10 | 264 | 2.7 |
| 11 | 261 | 2.7 |
| 12 | 274 | 2.7 |
| 13 | 253 | 2.8 |
| 14 | 231 | 2.8 |
| 15 | 183 | 3.3 |
| 16 | 194 | 4.1 |
| 17 | 233 | 3.3 |
| 18 | 276 | 3.8 |
| 19 | 292 | 5.1 |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| 5 | 979 | 370 | [illegible] |
| 10 | 903 | 1070 | [illegible] |
| 15 | 831 | 1770 | 5.2 |
| 20 | 766 | 2470 | 7.4 |
| 25 | 703 | 3170 | 9.5 |
| 30 | 647 | 3890 | 11.5 |
| 35 | 593 | 4570 | 13.5 |
| 40 | 544 | 5250 | 15.5 |
| 45 | 498 | 5940 | 17.[illegible] |
| 50 | 456 | 6620 | 19.[illegible] |
| 55 | 417 | 7290 | 21.[illegible] |
| 60 | 381 | 7970 | [illegible] |
| 65 | 347 | 8650 | [illegible] |
| 70 | 317 | 9250 | [illegible] |
| 75 | 287 | 9930 | 29.[illegible] |
| 80 | 262 | 10600 | 31.[illegible] |
| 85 | 237 | 11270 | 32.[illegible] |
| 90 | 214 | 11920 | 34.[illegible] |
| 95 | 192 | 12540 | 36.[illegible] |
| 100 | 171 | 13850 | [illegible] |
| 105 | 151 | 14100 | 40.[illegible] |

Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ______th meridion
4. El. of Station
5. Method of obs., e.g., rawinsonde, rawin, pibal
6. Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Reason for termination [illegible]

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [illegible] 5755 | 20 | 6720 | 49.5 | | 5250 | 250.8 | 20 | 279 | 4.8 |
| | 3870 6025 | 21 | 7070 | 49.6 | | 6000 | 251.1 | 21 | | |
| | 4050 6295 | 22 | | 49.9 | | | 249.7 | 22 | 222 | 3.8 |
| | 4230 6565 | 23 | 7760 | 50.4 | | 6400 | 249.1 | 23 | | |
| | 4410 6835 | 24 | | 51.3 | | | 247.1 | 24 | 203 | 2.3 |
| | 4590 7105 | 25 | 8460 | 52.3 | | 6600 | 247.3 | 25 | | |
| | 4770 7375 | 26 | | 54.1 | | | 246.0 | 26 | 88 | 6.3 |
| | 4950 7645 | 27 | 9160 | 57.2 | | 5900 | 244.6 | 27 | | |
| | 5130 7915 | 28 | | 59.3 | | | 242.7 | 28 | 88 | 7.3 |
| | 5310 8185 | 29 | 9850 | 62.5 | | 5100 | 240.5 | 29 | | |
| | 5490 8455 | 30 | | 65.9 | | | 238.6 | 30 | 81 | 10.7 |
| | 5670 8730 | 31 | 10530 | 69.7 | | 3900 | 234.2 | 31 | | |
| | 5850 9005 | 32 | | 73.8 | | | 228.4 | 32 | 82 | 13.2 |
| | 6030 9285 | 33 | 11250 | 77.1 | | 2600 | 217.6 | 33 | | |
| | 6210 9565 | 34 | | 80.8 | | | 203.3 | 34 | 65 | 14.3 |
| | 6390 9850 | 35 | 12000 | 83.7 | | 1340 | 180.7 | 35 | | |
| | 6570 10135 | 36 | | 83.1 | | | 153.7 | 36 | 81 | 13.1 |
| | 6750 10420 | 37 | 12700 | 81.6 | | 1890 | 125.0 | 37 | | |
| | 6930 10710 | 38 | | 78.6 | | | 101.8 | 38 | 71 | 13.6 |
| | 7110 11005 | 39 | 13410 | 76.8 | | 3150 | 100.3 | 39 | | |
| | 7290 11300 | 40 | 13780 | 76.2 | | 3370 | 102.5 | 40 | 126 | 3.5 |
| | 7470 11595 | 41 | 14100 | 75.9 | | 3530 | 103.5 | 41 | | |
| | 7650 11890 | 42 | 14450 | 76.1 | | 3600 | 103.1 | 42 | 138 | 1.4 |
| | 7830 12185 | 43 | | 75.9 | | | 103.6 | 43 | | |
| | 8010 12480 | 44 | 15130 | 76.4 | | 3650 | 105.7 | 44 | 235 | 1.7 |
| | 8190 12775 | 45 | | 77.0 | | | 107.6 | 45 | | |
| | 8370 13075 | 46 | 15780 | 77.9 | | 3350 | 108.6 | 46 | 256 | 2.7 |
| | 8550 13375 | 47 | | 78.6 | | | 110.9 | 47 | | |
| | 8730 13675 | 48 | 16450 | 79.4 | | 3100 | 111.5 | 48 | 235 | 2.3 |
| | 8910 13975 | 49 | | 79.8 | | | 112.8 | 49 | | |
| | 9090 14276 | 50 | 17150 | 79.9 | | 3050 | 116.6 | 50 | 225 | 1.9 |

| | | | |
|---|---|---|---|
| 110 | 131 | 15000 | 43.5 |
| 115 | 113 | 15750 | 46.[illegible] |
| 120 | 91 | 17070 | 49.7 |
| 125 | 76 | 17390 | 53.5 |
| 130 | 57 | 20100 | 58.2 |
| 135 | 46 | 22450 | 64.1 |
| 140 | 23 | 26170 | 73.2 |
| | | | |
| | | | |
| | | | |
| | | | |
| Alt | 19 | 27440 | 76.0 |

Punched Card Data

| Altitude # | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude # | Direction (degrees) | Speed |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 8 | 16 | Type of equipment | | 6 |
| sfc. | 240 | 3 | 17-21 | 7 | 256 | 4 |
| 150 M. | 235 | 6 | 22-26 | 8 | 207 | [illegible] |
| 300 M. | 229 | 9 | 27-31 | 9 | [illegible] | [illegible] |
| 0.5 | 227 | 12 | 32-36 | 10 | 82 | 10 |
| 1.0 | 240 | 9 | 37-41 | 11 | 80 | 13 |
| 1.5 | 257 | 9 | 42-46 | 12 | 71 | 14 |
| 2.0 | 279 | 6 | 47-51 | 13 | 74 | 1[illegible] |
| 2.5 | 292 | 3 | 52-56 | 14 | 130 | [illegible] |
| 3 | 289 | 3 | 57-61 | 15 | 202 | [illegible] |
| 4 | 271 | 3 | 62-66 | 16 | 249 | [illegible] |
| 5 | 141 | 3 | 67-71 | 17 | [illegible] | [illegible] |
| 6 | 271 | 4 | 72-76 | 18 | [illegible] | [illegible] |

Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72CCG | 05751 | [illegible] | 2 [illegible] | [illegible] | 4 2517 | 2618 | 6 2716 | 2910 | 8 2906 |
| 2906 | 0 2909 | 2 2605 | 4 2605 | 6 2106 | 8 2407 | 02808 | 5 32609 | 5 2207 | 00913 |
| 50829 | 00826 | 30776 | 51208 | 02303 | 324051 | | | | |
| [illegible] | 72CCG | 05911 | 99996 | 02503 | 70905 | 00807 | 80817 | 00821 | 70926 |
| [illegible] | | | | | | | | | |

Computer [illegible]

Verifier [illegible]

WB FORM 610-12
(6-53)
USCOMM-WB-DC

*Identification
Portand, Maine (City Airport)
43° 39'N 70° 19'W 75th Mer.
Rawin WDRT 60 Eev. 20m.

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual time ___th mer. | 1964 | JUL | 18 | 06 |
| Scheduled (G.M.T.) | 1964 | JUL | 18 | 12 |

Ascension No. 797

Page 7

Type of balloon 600 Gram

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle ° Observed | Elevation angle ° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction ° 360° = N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sfc. | 270 | 3.1 |
| | 216 / 380 | 1 | 280 | 34.2 | | 420 | 275.1 | 1 | 276 | 9.2 |
| | 414 / 670 | 2 | 550 | 29.1 | | 1000 | 276.5 | 2 | 269 | 9.0 |
| | 612 / 980 | 3 | 800 | 28.3 | | 1490 | 274.1 | 3 | 248 | 7.0 |
| | 801 / 1285 | 4 | 1080 | 29.8 | | 1760 | 262.9 | 4 | 242 | 7.0 |
| | 990 / 1585 | 5 | 1340 | 30.5 | | 2230 | 258.4 | 5 | 244 | 6.0 |
| | 1170 / 1880 | 6 | 1570 | 32.1 | | 2480 | 257.6 | 6 | 276 | 3.5 |
| | 1350 / 2170 | 7 | 1800 | 34.0 | | [illegible] | 260.5 | 7 | 276 | 3.6 |
| | 1530 / 2455 | 8 | 2050 | 35.5 | | 2800 | 263.5 | 8 | 300 | 4.0 |
| | 1710 / 2740 | 9 | 2290 | 36.6 | | 3050 | 266.1 | 9 | 304 | 4.1 |
| | 1890 / 3020 | 10 | 2540 | 38.3 | | 3170 | 269.5 | 10 | 326 | 4.2 |
| | 2070 / 3300 | 11 | 2790 | 39.9 | | 3310 | 274.0 | 11 | 338 | 4.6 |
| | 2250 / 3580 | 12 | 3020 | 41.0 | | 3400 | 278.3 | 12 | 330 | 4.6 |
| | 2430 / 3855 | 13 | 3280 | 41.5 | | 3650 | 281.2 | 13 | 312 | 5.3 |
| | 2610 / 4130 | 14 | 3560 | 41.2 | | 3950 | 283.2 | 14 | 299 | 4.8 |
| | 2790 / 4405 | 15 | [illegible] | 41.2 | | 4200 | 283.1 | 15 | [illegible] | 4.3 |
| | 2970 / 4675 | 16 | 4070 | 41.3 | | 4500 | 283.3 | 16 | 287 | 5.0 |
| | 3150 / 4945 | 17 | 4370 | 41.5 | | 4800 | 285.3 | 17 | 285 | 4.1 |
| | 3330 / 5215 | 18 | 4620 | 41.1 | | 5000 | 284.0 | 18 | 295 | 2.7 |
| | 3510 / 5485 | 19 | 4870 | 41.5 | | 5100 | 284.5 | 19 | 293 | 4.0 |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min) |
|---|---|---|---|
| 5 | 983 | 320 | 1.5 |
| 10 | 939 | 1190 | [illegible] |
| 15 | 821 | 1830 | 7.1 |
| 20 | 749 | 2660 | 10.[illegible] |
| 25 | 681 | 3400 | [illegible] |
| 30 | 619 | 4220 | 16.4 |
| 35 | 560 | 5000 | 19.6 |
| 40 | 507 | 5790 | 22.6 |
| 45 | 457 | 6550 | 25.4 |
| 50 | 413 | 7320 | 28.[illegible] |
| 55 | 372 | 8100 | 31.1 |
| 60 | 335 | 8560 | 33.7 |
| 65 | 302 | 9580 | 36.2 |
| 70 | 271 | 10300 | 38.6 |
| 75 | 243 | 11100 | 40.7 |
| 80 | 218 | 11720 | 42.9 |
| 85 | 195 | 12450 | 45.[illegible] |
| 90 | 174 | 13200 | [illegible] |
| 95 | 155 | [illegible] | [illegible] |
| 100 | 137 | [illegible] | |
| 105 | 170 | 15510 | [illegible] |

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ______th meridian
4. El. of Station
5. Method of obs., e.g., rawinsonde, rawin, pibal
6. Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [illegible] 5755 | 20 | 5140 | 42.0 | | 5500 | 272.1 | 20 | 274 | 5.9 |
| | 3870 6025 | 21 | 5380 | 42.0 | | 5800 | 282.8 | 21 | 265 | 6.0 |
| | 4050 6295 | 22 | 5660 | 42.0 | | 6200 | 282.0 | 22 | 265 | 6.0 |
| | 4230 6565 | 23 | 5930 | 41.5 | | 6500 | 281.0 | 23 | 253 | 6.0 |
| | 4410 6835 | 24 | 6200 | 41.2 | | 6800 | [illegible] | 24 | 231 | 7.0 |
| | 4590 7105 | 25 | 6500 | 42.2 | | 7000 | [illegible] | 25 | 215 | 5.0 |
| | 4770 7375 | 26 | 6740 | 42.6 | | 7100 | 274.0 | 26 | 241 | 6.0 |
| | 4950 7645 | 27 | 7040 | 43.2 | | 7600 | 272.5 | 27 | | |
| | 5130 7915 | 28 | [illegible] | 42.7 | | | 27[illegible] | 28 | 218 | 5.1 |
| | 5310 8185 | 29 | 7580 | 43.2 | | 8500 | 26[illegible] | 29 | | |
| | 5490 8455 | 30 | | 43.5 | | | 267.6 | 30 | 217 | 5.0 |
| | 5670 8730 | 31 | 8180 | 44.1 | | 8400 | 265.[illegible] | 31 | | |
| | 5850 9005 | 32 | | 44.3 | | | 264.3 | 32 | 218 | 6.0 |
| | 6030 9285 | 33 | 8860 | 44.3 | | 8900 | 262.3 | 33 | | |
| | 6210 9565 | 34 | | 44.1 | | | 262.8 | 34 | 222 | 6.0 |
| | 6390 9850 | 35 | 9450 | 44.6 | | 9500 | 259.5 | 35 | | |
| | 6570 10135 | 36 | | 45.7 | | | 258.6 | 36 | 172 | 3.0 |
| | 6750 10420 | 37 | 10060 | 46.7 | | 9500 | 257.5 | 37 | | |
| | 6930 10710 | 38 | | 47.5 | | | 256.5 | 38 | 121 | 6.0 |
| | 7110 11005 | 39 | 10680 | 48.6 | | 9000 | 254.9 | 39 | | |
| | 7290 11300 | 40 | | 50.3 | | | 253.7 | 40 | 131 | 4.0 |
| | 7470 11595 | 41 | 11280 | 51.9 | | 8800 | 252.0 | 41 | | |
| | 7650 11890 | 42 | | 53.4 | | | 250.7 | 42 | 106 | 7.5 |
| | 7830 12185 | 43 | 11970 | 55.5 | | 8000 | 248.4 | 43 | | |
| | 8010 12480 | 44 | | 57.4 | | | 245.2 | 44 | 131 | 7.0 |
| | 8190 12775 | 45 | 12580 | 58.8 | | 7600 | 241.4 | 45 | | |
| | 8370 13075 | 46 | | 59.5 | | | 238.5 | 46 | 161 | 4.5 |
| | 8550 13375 | 47 | 13180 | 59.8 | | 7700 | 237.5 | 47 | | |
| | 8730 13675 | 48 | 13500 | 60.7 | | 7650 | 235.5 | 48 | 123 | 5.0 |
| | 8910 13975 | 49 | 13830 | 61.7 | | 7400 | 233.3 | 49 | | |
| | 9090 14275 | 50 | 14160 | 61.5 | | 7700 | 232.7 | 50 | 195 | 4.6 |

Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PP 7[illegible] | 1[illegible]61 | 1816 | 7 2717 | 2514 | 4 2413 | 2707 | 6 3005 | 3008 | 8 3308 |
| 3309 | 0 3309 | 2 3009 | 4 2909 | 6 2408 | 8 [illegible]12 | 0 2[illegible]13 | 8 32311 | 52210 | 22212 |
| 5130 | 0 1[illegible] | 5[illegible] | 12310 | 12209 | D | | | | |
| 2012 | [illegible] | [illegible] | D | | | | | | |
| | | | | | | | | | |

| | | | |
|---|---|---|---|
| 110 | 100 | | |
| 115 | 87 | | |
| 120 | 74 | | |
| 125 | 60 | | |
| 130 | 44 | | |
| 135 | 29 | | |
| 140 | 14 | | |
| | | | |
| | | | |
| | | | |
| MW | 10 | 14080 | 55.5 |

Punched Card Data

| Altitude # | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude # | Direction (degrees) | Speed |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 8 | 16 | Type of equipment | | 6 |
| sfc. | 270 | 3 | 17-21 | 7 | 230 | 6 |
| 150 M. | 272 | 6 | 22-26 | 8 | 216 | 6 |
| 300 M. | 279 | 8 | 27-31 | 9 | 2[illegible] | 6 |
| 0.5 | 272 | 9 | 32-36 | 10 | [illegible] | 4 |
| 1.0 | 245 | 7 | 37-41 | 11 | 133 | 4 |
| 1.5 | 270 | 4 | 42-46 | 12 | 120 | [illegible] |
| 2.0 | 300 | 14 | 47-51 | 13 | 153 | 5 |
| 2.5 | 335 | 4 | 52-56 | 14 | 176 | 5 |
| 3 | 330 | 5 | 57-61 | 15 | 222 | 6 |
| 4 | 286 | 5 | 62-66 | 16 | | |
| 5 | 281 | 5 | 67-71 | 17 | | |
| 6 | 242 | 7 | 72-76 | 18 | | |

Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Dir. (degrees) and speed (m.p.s.) of Max. wind | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

× Termination

# Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Reason for termination [illegible]

Computer CFF

Verifier JFC

1B Jun 64
LYNN, Mass

9/19/64 [redacted]

Lynn, Mass.

Dear Major Jacks,

I have received the evaluation of the UFO report which was submitted by me, and forwarded to Dayton, Ohio, by Major Geo. N. Kent of Hanscom AFB. If this evaluation is a joke, I'll go along with it for laughs, but if it represents a serious belief in this matter, then there is really great cause for concern over the intelligence of those responsible for such an evaluation. I consider this only a gross affront to the intelligence of those involved in this sighting. You know better than to believe this, and so do I.

over

As you may be aware, I have been involved in several other U.F.O. cases among which, was a daylight sighting wherein a disc shaped object stopped dead in the sky directly over head, then reversed. This case was discussed by myself and a person who held the position of Director of Flight Testing on Project SAGE, so I am already aware that these so called UFO are actually alien space craft from elsewhere.

I felt that since several of these craft have appeared and maneuvered over my home over a period of time, that a pattern of interest had perhaps been shown to exist on the part of the occupants of said craft. If so, I feel that some good use could be made of this fact, if it is a fact.

Sincerely, [redacted]

18[illegible]

[redacted]

Lynn, Mass.
July 22, 1964

Dear Sir,

On Saturday night at 10.55 P.M. a U.F.O. manuevered over Lynn, Mass. This object ~~[illegible]~~ resembled a star of the same magnitude as the Echo II satellite. My wife and I watched this object as it traveled South South West. It moved at the same apparent speed as Echo 1 or 2 and I thought that it was either one of these. as we wathed this object, it slowed down and stopped, then moved backward until it arrived at a point directly over-head, where it stopped again. It remained motionless this time, and could easily have been mistaken for a star, as this is what it looked like to the naked eye. We watch

object in it, so I used my binoculars which my wife had brought out. This time the object continued to move steadily away to the E.N.E. and I watched it until it faded from view.

I was called on the telephone at 10.55 or thereabouts, by my sister who lives about a quarter mile from my home, and she told me she and her husband had watched this object maneuver in the sky for 10 minutes before she called me to go out and see it. This same object had accelerated very rapidly over her place becoming very bright, lighting up the immediate area and giving the sky a dark blue color. The object also stopped and reversed while they observed it prior to calling me. When my wife and I were observing this object, it stopped and hovered directly over our yard where we were standing



ed this object for a couple of minutes and it remained motionless. I told my wife to keep her eyes on it, while I went in to bring out my telescope, a 4" reflector type.

I arrived outside with it, and set it up, the object still remaining motionless. As the object was directly above us, the telescope was pointed straight up making it very difficult to get my eye to the eyepiece so I suggested we move to the back of the yard, so I could get an angle shot at it. We walked to the rear of the property and I again set the scope up. This gave me an angle view so I could locate the object in the finder scope. As I was focusing it in the eyepiece (3/4") the star like object again began to move, though this time to the ENE. As my scope has a narrow field, it is very difficult if not impossible to locate a moving

HEADQUARTERS
FOREIGN TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO



REPLY TO
ATTN OF: TDEW

SUBJECT: UFO Sighting, 18 Jul 64, Lynn, Massachusetts

4 Sep 64

TO: Hq USAF SAFOI PB (Mrs Gaiser)
Wash D C 20330

1. Reference the attached letter from Mr [redacted] regarding a satellite-like observation on 18 Jul 64 at Lynn, Massachusetts.

2. The direction of motion to the SSW is contrary to normal orbital flights. The motion and description of the object is comparable with a radiosonde or a rawinsonde balloon with a light attached. With the exception of the lighting up of the immediate area, which was not observed by Mr [redacted], but reported by his sister, no association can be established between the object observed by him and his wife or that of his sister. It is suggested that Mr [redacted] be informed that his sighting has been evaluated as a probable balloon observation and that a Fact Sheet be forwarded to explain the Air Force's position on unidentified flying objects.

FOR THE COMMANDER

ERIC T de JONCKHEERE
Colonel, USAF
Deputy for Technology
and Subsystems

1 Atch
Ltr, [redacted],
22 Jul 64

YOU - THE NUCLEUS OF SECURITY!

I had been to Hayden Planetarium on Tuesday, July 14, 1964, as I had an appointment to talk to Mr Walter N. Webb, director of the Planetarium. The purpose of this appointment had been to discuss a lunar observation made by myself and a friend. At this time Mr. Webb brought up the subject of the U.F.O. and mentioned a recent reported sighting over the Highlands area of Lynn, in which the object made a near landing. He also said he was interested in getting recent sightings.

Four days after this request is pretty quick service!

I have sent this report to Mr. Webb, and have asked for a meeting with him, to fully discuss the U.F.O. situation.

His policy is to tell the truth and let the chiks fall where they may.

as Rep[redacted]

HEADQUARTERS
FOREIGN TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

REPLY TO
ATTN OF: TDFCC/Maj Mills/57223

SUBJECT: Meteorological Data

DEC 3 1964

TO: TDEW (Maj Quintanilla)
(TSgt Moody)

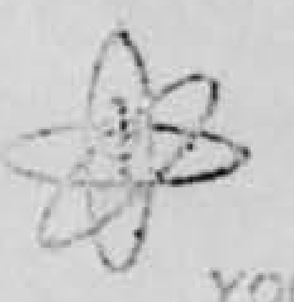
1. Reference your November request for meteorological data. The attached data are for 1964 dates: 2 Apr, 18 May, 9-10 and 18-19 July.

2. I have extracted the wind data for Boston and Cleveland areas.

3. Please call if any further explanations are needed.

George Mills II
GEORGE MILLS II
Major, USAF
Meteorologist

6 Atch
1. Boston and Cleveland winds, 18-19 Jul 64
2. Madison, Wisconsin, 2 Apr Surface Data
3. Washington, D.C. 18 May Surface Data
4. Portland, Me., Boston, Mass. and Nantucket, Mass. July 16-19 Upper Wind Data
5. Toledo, Ohio and Pittsburg, Pa., 17-18 July Upper Wind Data
6. Adiabatic Charts for Missouri area, 9-10 July



Boston Area Winds 18-19 July 1964, Local Times

Directions in degrees from which wind blows, e.g., 240 is a SW wind 270 is from the west. Speed in knots.

| 1000 Ft Level | 18 July 1800L Degrees | 18 July 1800L Knots | 19 July 0000L Degrees | 19 July 0000L Knots | 19 July 0620L Degrees | 19 July 0620L Knots |
|---|---|---|---|---|---|---|
| Surface | 240 | 23 | 240 | 30 | 280 | 22 |
| 2 | 250 | 25 | 260 | 37 | 290 | 30 |
| 3 | 260 | 24 | 260 | 33 | 300 | 30 |
| 4 | 260 | 25 | 260 | 25 | 290 | 26 |
| 5 | 260 | 25 | 260 | 19 | 280 | 23 |
| 6 | 270 | 28 | 270 | 18 | 270 | 22 |
| 7 | 270 | 29 | 270 | 17 | 260 | 21 |
| 8 | 270 | 28 | 270 | 16 | 250 | 21 |
| 9 | 270 | 23 | 270 | 14 | 260 | 23 |
| 10 | 270 | 19 | 290 | 22 | 260 | 21 |
| 12 | 260 | 23 | 290 | 15 | | |
| 14 | 260 | 19 | 270 | 15 | | |
| 16 | 270 | 16 | 270 | 20 | | |
| 18 | 290 | 19 | 300 | 21 | | |
| 20 | 290 | 18 | 300 | 18 | | |
| 23 | 290 | 15 | 300 | 27 | | |
| 25 | 300 | 15 | 300 | 29 | | |
| 30 | 280 | 18 | 280 | 34 | | |

Cleveland Area Winds 18 July 1964 estimated for 0245 GMT

| | | |
|---|---|---|
| Surface | 220 | 11 |
| 2 | 220 | 20 |
| 3 | 230 | 20 |
| 4 | 240 | 20 |
| 5 | 240 | 16 |
| 6 | 250 | 15 |
| 7 | 260 | 14 |
| 8 | 280 | 11 |
| 9 | 300 | 9 |
| 10 | 300 | 6 |

...m 610-12

| *Identification | U.S. DEPARTMENT OF COMMERCE WEATHER BUREAU | | Year | Month | Day | Time |
|---|---|---|---|---|---|---|
| WBAS, BOSTON-20, MASS.<br>42° 22'N 71° 02'W<br>PIBAL___ THEODOLITE___<br>75th MER ... ELEV 11' MSL | **WINDS-ALOFT COMPUTATION SHEET**<br>(LAND STATION FORM)<br>WBAN-20 | Actual (local standard) | 196[illegible] | Jul | 12 | [illegible] |
| | | Scheduled (G.M.T.) | 196[illegible] | Jul | 17 | 000 |
| | | Ascension No. 648 | | | | |

Type of balloon 100 Gr

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle° Observed | Elevation angle° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction° 360° = N. | Wind Speed (m.p.s.) | Rawinsonde Time-Altitude Data: Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sfc. | 212 | 7.7 | | | | |
| | 216 / 350 | 1 | | 21.7 | | 880 | 215.5 | 1 | 219 | 15.0 | + | | | |
| | 414 / 670 | 2 | | 20.6 | | 1785 | 219.3 | 2 | 233 | 15.5 | 5 | | | |
| | 612 / 980 | 3 | | 19.7 | | 2735. | 227.4 | 3 | 248 | 15.1 | 10 | | | |
| | 801 / 1285 | 4 | | 20.1 | | 3510 | 233.7 | 4 | 263 | 12.9 | 15 | | | |
| | 990 / 1585 | 5 | | 21.2 | | 4085 | 239.9 | 5 | 273 | 11.9 | 20 | | | |
| | 1170 / 1880 | 6 | | | | | | 6 | | | 25 | | | |
| | 1350 / 2170 | 7 | | | | | | 7 | | | 30 | | | |
| | 1530 / 2455 | 8 | | | | | | 8 | | | 35 | | | |
| | 1710 / 2740 | 9 | | | | | | 9 | | | 40 | | | |
| | 1890 / 3020 | 10 | | | | | | 10 | | | 45 | | | |
| | 2070 / 3300 | 11 | | | | | | 11 | | | 50 | | | |
| | 2250 / 3500 | 12 | | | | | | 12 | | | 55 | | | |
| | 2430 / 3855 | 13 | | | | | | 13 | | | 60 | | | |
| | 2610 / 4130 | 14 | | | | | | 14 | | | 65 | | | |
| | 2790 / 4405 | 15 | | | | | | 15 | | | 70 | | | |
| | 2970 / 4675 | 16 | | | | | | 16 | | | 75 | | | |
| | 3150 / 4945 | 17 | | | | | | 17 | | | 80 | | | |
| | 3330 / 5215 | 18 | | | | | | 18 | | | 85 | | | |
| | 3510 / 5485 | 19 | | | | | | 19 | | | 90 | | | |
| | 3690 / 5755 | 20 | | | | | | 20 | | | 95 | | | |
| | 3870 | | | | | | | | | | | | | |

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...B-1A,
...MO-1,
...CR-658,
...eodolite

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|---|---|---|---|---|---|---|---|---|---|---|
| | 6025 | 21 | | | | | | 21 | | |
| | 4050 6295 | 22 | | | | | | 22 | | |
| | 4230 6565 | 23 | | | | | | 23 | | |
| | 4410 6835 | 24 | | | | | | 24 | | |
| | 4590 7105 | 25 | | | | | | 25 | | |
| | 4770 7375 | 26 | | | | | | 26 | | |
| | 4950 7645 | 27 | | | | | | 27 | | |
| | 5130 7915 | 28 | | | | | | 28 | | |
| | 5310 8185 | 29 | | | | | | 29 | | |
| | 5490 8455 | 30 | | | | | | 30 | | |
| | 5670 8730 | 31 | | | | | | 31 | | |
| | 5850 9005 | 32 | | | | | | 32 | | |
| | 6030 9285 | 33 | | | | | | 33 | | |
| | 6210 9565 | 34 | | | | | | 34 | | |
| | 6390 9850 | 35 | | | | | | 35 | | |
| | 6570 10135 | 36 | | | | | | 36 | | |
| | 6750 10420 | 37 | | | | | | 37 | | |
| | 6930 10710 | 38 | | | | | | 38 | | |
| | 7110 11005 | 39 | | | | | | 39 | | |
| | 7290 11300 | 40 | | | | | | 40 | | |
| | 7470 11595 | 41 | | | | | | 41 | | |
| | 7650 11890 | 42 | | | | | | 42 | | |
| | 7830 12185 | 43 | | | | | | 43 | | |
| | 8010 12480 | 44 | | | | | | 44 | | |
| | 8190 12775 | 45 | | | | | | 45 | | |
| | 8370 13075 | 46 | | | | | | 46 | | |
| | 8550 13375 | 47 | | | | | | 47 | | |
| | 8730 13675 | 48 | | | | | | 48 | | |
| | 8910 13975 | 49 | | | | | | 49 | | |
| | 9090 14275 | 50 | | | | | | 50 | | |

| | | | | | |
|---|---|---|---|---|---|
| 100 | | | | | |
| 105 | | | | | |
| 110 | | | | | |
| 115 | | | | | |
| 120 | | | | | |
| 125 | | | | | |
| 130 | | | | | |
| 135 | | | | | |
| 140 | | | | | |
| | | | | | |
| * | | | | | |

## Punched Card Data

| Altitudes | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitudes | Direction (degrees) | Speed |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 0 | 16 | Type of equipment | | |
| sfc. | 212 | 8 | 17-21 | 7 | | |
| 150 m. | 215 | 11 | 22-26 | 8 | | |
| 300 m. | 217 | 14 | 27-31 | 9 | | |
| 0.5 | 225 | 15 | 32-36 | 10 | | |
| 1.0 | 248 | 15 | 37-41 | 11 | | |
| 1.5 | 269 | 12 | 42-46 | 12 | | |
| 2.0 | | | 47-51 | 13 | | |
| 2.5 | | | 52-56 | 14 | | |
| 3 | | | 57-61 | 15 | | |
| 4 | | | 62-66 | 16 | | |
| 5 | | | 67-71 | 17 | | |
| 6 | | | 72-76 | 18 | | |

PP

## Coded Data for Transmission

CV

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 725·9 | 00151 | 2226 | 22330 | 2429 | 02626 | 22230 | 6 | | 8 |
| | 0 | 2 | 4 | 6 | 8 | 0 | QQ00 | 72509 | XMTD(1) |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

## Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Max. wind speed (m.p.s.) and dir. (degrees) | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

Computer [illegible]

Verifier JM [illegible]

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SRT-57,
MD-1A,
MD-1,
CR-658,
eodolite

*Identification

WBAS, BOSTON 28, MASS.
42° 22'N 71° 02'W
PIBAL ___ THEODOLITE ___
75th MER ELEV 11' MSL

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

# WINDS-ALOFT COMPUTATION SHEET

(LAND STATION FORM)

WBAN-20

| | Year | Month | Day | Time |
|---|---|---|---|---|
| Actual (local standard) | 1964 | Jul | 19 | 002 |
| Scheduled (G.M.T.) | 1964 | Jul | 19 | [illegible] |

Ascension No. 647

Type of balloon 100 GR

Orientation, 360° = South

| Slant range (m.) (yds.) | Pibal ht. above sfc. (m.) 30 gram / 100 gram | Minute | Rawin ht. above surface (m.) | Elevation angle° Observed | Elevation angle° Smoothed | Distance from observation point (m.) | Azimuth angle ° | Minute | Wind Direction° 360°= N. | Wind Speed (m.p.s.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | sfc. 220 | 7.7 |
| | 216 / 350 | 1 | | 24.0 | | 785 | 236.6 | 1 | 245 | 17.1 |
| | 414 / 670 | 2 | | 18.1 | | 2050 | 244.8 | 2 | 259 | 20.0 |
| | 612 / 980 | 3 | | 17.4 | | 3125 | 252.1 | 3 | 265 | 16.0 |
| | 801 / 1285 | 4 | | 18.2 | | 3910 | 254.5 | 4 | 263 | 11.8 |
| | 990 / 1585 | 5 | | 19.3 | | 4575 | 255.5 | 5 | 263 | 9.8 |
| | 1170 / 1880 | 6 | | 20.4 | | 5055 | 256.3 | 6 | 266 | 9.1 |
| | 1350 / 2170 | 7 | | 21.2 | | 5595 | 257.5 | 7 | 270 | 8.8 |
| | 1530 / 2455 | 8 | | 22.0 | | 6075 | 258.8 | 8 | 271 | 7.9 |
| | 1710 / 2740 | 9 | | 22.8 | | 6520 | 259.4 | 9 | 267 | 7.0 |
| | 1890 / 3020 | 10 | | 23.6 | | 6910 | 259.8 | 10 | 265 | 6.8 |
| | 2070 / 3300 | 11 | | | | | | 11 | | |
| | 2250 / 3580 | 12 | | | | | | 12 | | |
| | 2430 / 3855 | 13 | | | | | | 13 | | |
| | 2610 / 4130 | 14 | | | | | | 14 | | |
| | 2790 / 4405 | 15 | | | | | | 15 | | |
| | 2970 / 4675 | 16 | | | | | | 16 | | |
| | 3150 / 4945 | 17 | | | | | | 17 | | |
| | 3330 / 5215 | 18 | | | | | | 18 | | |
| | 3510 / 5485 | 19 | | | | | | 19 | | |
| | 3690 / 5755 | 20 | | | | | | 20 | | |

Rawinsonde Time-Altitude Data

| Contact | Pressure (mb.) | Altitude (m., m.s.l.) | Elapsed time (min.) |
|---|---|---|---|
| + | | | |
| 5 | | | |
| 10 | | | |
| 15 | | | |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |
| 55 | | | |
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| 80 | | | |
| 85 | | | |
| 90 | | | |
| 95 | | | |

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...pect to
...und, alt.
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3870 6025 | 21 | | | | | | 21 | | |
| | 4050 6295 | 22 | | | | | | 22 | | |
| | 4230 6565 | 23 | | | | | | 23 | | |
| | 4410 6835 | 24 | | | | | | 24 | | |
| | 4590 7105 | 25 | | | | | | 25 | | |
| | 4770 7375 | 26 | | | | | | 26 | | |
| | 4950 7645 | 27 | | | | | | 27 | | |
| | 5130 7915 | 28 | | | | | | 28 | | |
| | 5310 8185 | 29 | | | | | | 29 | | |
| | 5490 8455 | 30 | | | | | | 30 | | |
| | 5670 8730 | 31 | | | | | | 31 | | |
| | 5850 9005 | 32 | | | | | | 32 | | |
| | 6030 9285 | 33 | | | | | | 33 | | |
| | 6210 9565 | 34 | | | | | | 34 | | |
| | 6390 9850 | 35 | | | | | | 35 | | |
| | 6570 10135 | 36 | | | | | | 36 | | |
| | 6750 10420 | 37 | | | | | | 37 | | |
| | 6930 10710 | 38 | | | | | | 38 | | |
| | 7110 11005 | 39 | | | | | | 39 | | |
| | 7290 11300 | 40 | | | | | | 40 | | |
| | 7470 11595 | 41 | | | | | | 41 | | |
| | 7650 11890 | 42 | | | | | | 42 | | |
| | 7830 12185 | 43 | | | | | | 43 | | |
| | 8010 12480 | 44 | | | | | | 44 | | |
| | 8190 12775 | 45 | | | | | | 45 | | |
| | 8370 13075 | 46 | | | | | | 46 | | |
| | 8550 13375 | 47 | | | | | | 47 | | |
| | 8730 13675 | 48 | | | | | | 48 | | |
| | 8910 13975 | 49 | | | | | | 49 | | |
| | 9050 14275 | 50 | | | | | | 50 | | |

| | | | | |
|---|---|---|---|---|
| 100 | | | | |
| 105 | | | | |
| 110 | | | | |
| 115 | | | | |
| 120 | | | | |
| 125 | | | | |
| 130 | | | | |
| 135 | | | | |
| 140 | | | | |
| | | | | |
| * | | | | |

## Punched Card Data

| Altitude* | Direction (degrees) | Speed (m.p.s.) | Card columns | Altitude* | Direction (degrees) | Speed |
|---|---|---|---|---|---|---|
| Card No. 1 | | | 15 | Card No. 2 | | |
| Type of equipment | | 0 | 16 | Type of equipment | | |
| sfc. | 220 | 8 | 17-21 | 7 | | |
| 150 m. | 230 | 12 | 22-26 | 8 | | |
| 300 m. | 241 | 16 | 27-31 | 9 | | |
| 0.5 | 251 | 18 | 32-36 | 10 | | |
| 1.0 | 265 | 16 | 37-41 | 11 | | |
| 1.5 | 263 | 10 | 42-46 | 12 | | |
| 2.0 | 268 | 9 | 47-51 | 13 | | |
| 2.5 | 271 | 8 | 52-56 | 14 | | |
| 3 | 266 | 7 | 57-61 | 15 | | |
| 4 | | | 62-66 | 16 | | |
| 5 | | | 67-71 | 17 | | |
| 6 | | | 72-76 | 18 | | |

## Maximum Wind Speed Data

| | | |
|---|---|---|
| Min. alt. wind speed 45 m.p.s. or more (m.) | | |
| Alt. of maximum wind speed (m.) | | |
| Max. wind speed (m.p.s.) and dir. (degrees) | | |
| Max. alt. wind speed 45 m.p.s. or more (m.) | | |
| Enter check if additional levels appear on reverse side. | | |

## Coded Data for Transmission

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72509 | 06452 | 2430 | 2 2637 | 2633 | 4 2625 | 2619 | 6 2718 | 2717 | 8 2716 |
| 2714 (1) | 0 | 2 | 4 | 6 | 8 | 0 | 5 | | |
| | QQ06 | 72509 | | XMTD (1) | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Computer

Verifier